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# *Worldwide Challenges to Naval Strike Warfare*



*1997*

# C HINA: INVESTING IN AIR DEFENSE

At present, China's Air Force and Naval Air Force are obsolescent, rendering the forces incapable of mounting any effective large-scale or sustained air operations. Most Chinese aircraft, such as the 1950's vintage F-6 FARMER and F-7 FISHBED, were either produced under license (F-6) or were reverse engineered (F-7) from Soviet aircraft. In addition, upheavals caused by the Cultural Revolution have left China behind contemporaries in aviation design and manufacturing technology. Realizing this deficiency, China has been striving since the late 1970's to become self-sufficient in the design, construction, and maintenance of advanced, indigenously produced aircraft.



IOC 2015

XXJ



IOC 2003

FC-1



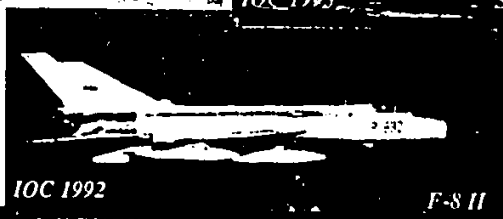
IOC 2000

FB-7



IOC 1995

Su-27



IOC 1992

F-8 II



IOC 1967

F-7



IOC 1963

F-6

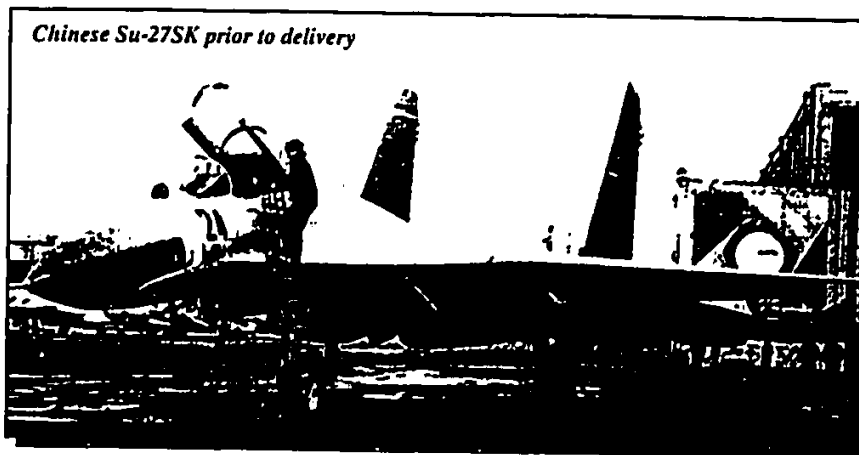
China is currently developing at least six tactical aircraft at a time when many nations are finding it difficult to finance a single program. Of these, three are modern fighters: the license-built Su-27SK air superiority fighter, the indigenously designed F-10 multi-role fighter, and an indigenous carrier fighter (possibly a sea-based derivative of the F-10). A more advanced fighter, the XXJ, is likely in the early stages of conceptual design.

Other aircraft in development include a light strike aircraft, the FB-7; an improved version of the F-8 interceptor, the F-8IIM; and a light fighter based on the MiG-21, the FC-1. The FC-1, in particular, is targeted at the export market.

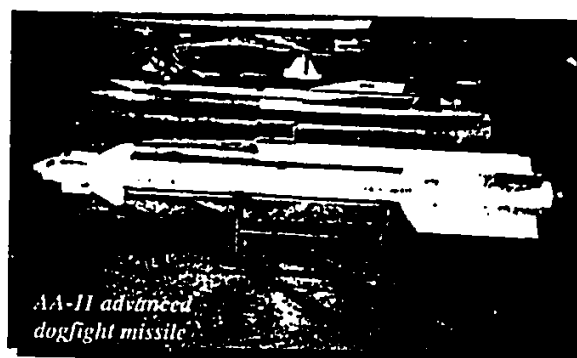
# CHINA: SU-27SK AIR SUPERIORITY FIGHTER



The Su-27SK is the export version of the standard Russian Su-27. It is a large, single seat, maneuverable fighter in the general class of the U.S. F-15. The Su-27 is China's only fourth generation fighter in service. It is designed for air combat using a powerful lookdown radar, beyond-visual-range radar-guided missiles, the world class AA-11 dogfight missile, and an internal 30-mm cannon. The Su-27 carries an extensive electronic countermeasures suite. The Su-27 has limited surface attack capability and does not use precision-guided munitions.

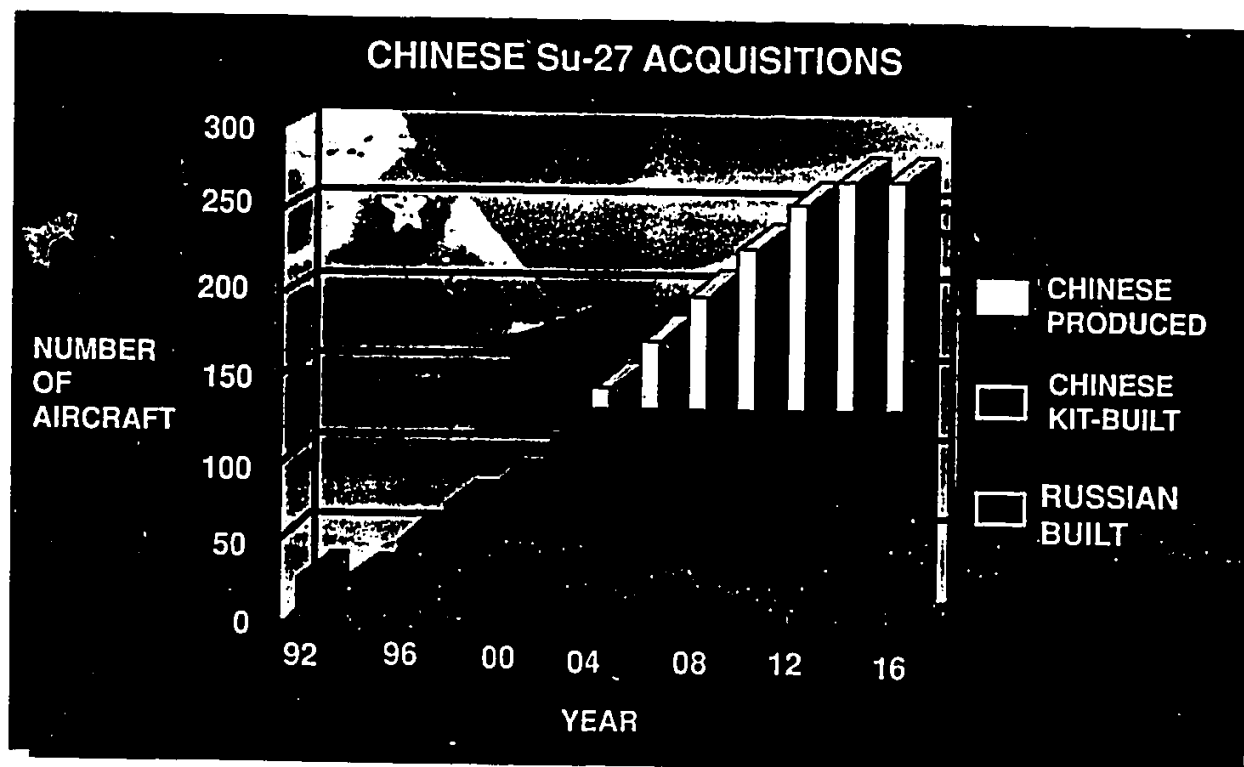


Chinese Su-27SK prior to delivery



AA-11 advanced dogfight missile

China and Russia have completed an agreement for the licensed production of the Su-27 in the PRC. The first examples of Chinese-built Su-27 are expected to appear around the turn of the century. Russian industry sources already have expressed concern that China could flood the export market with low priced derivatives of the Su-27.



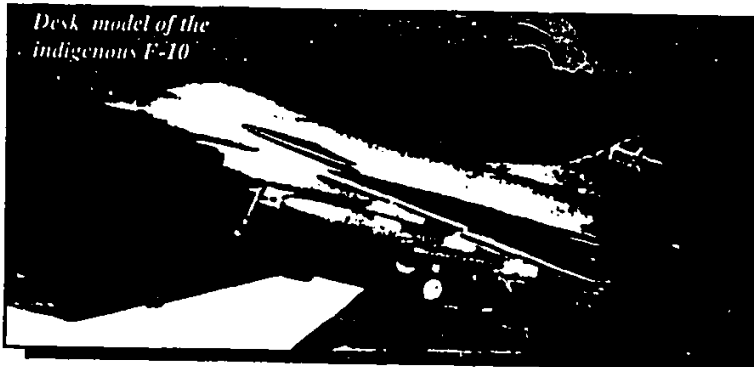
## CHINA: F-10 MULTI-ROLE FIGHTER



The F-10 is China's first indigenous design of a fourth generation fighter, and it is intended to reach squadron service before 2005. The design has been undertaken with substantial direct external assistance, primarily from Israel and Russia, and with indirect assistance through access to U.S. technologies.

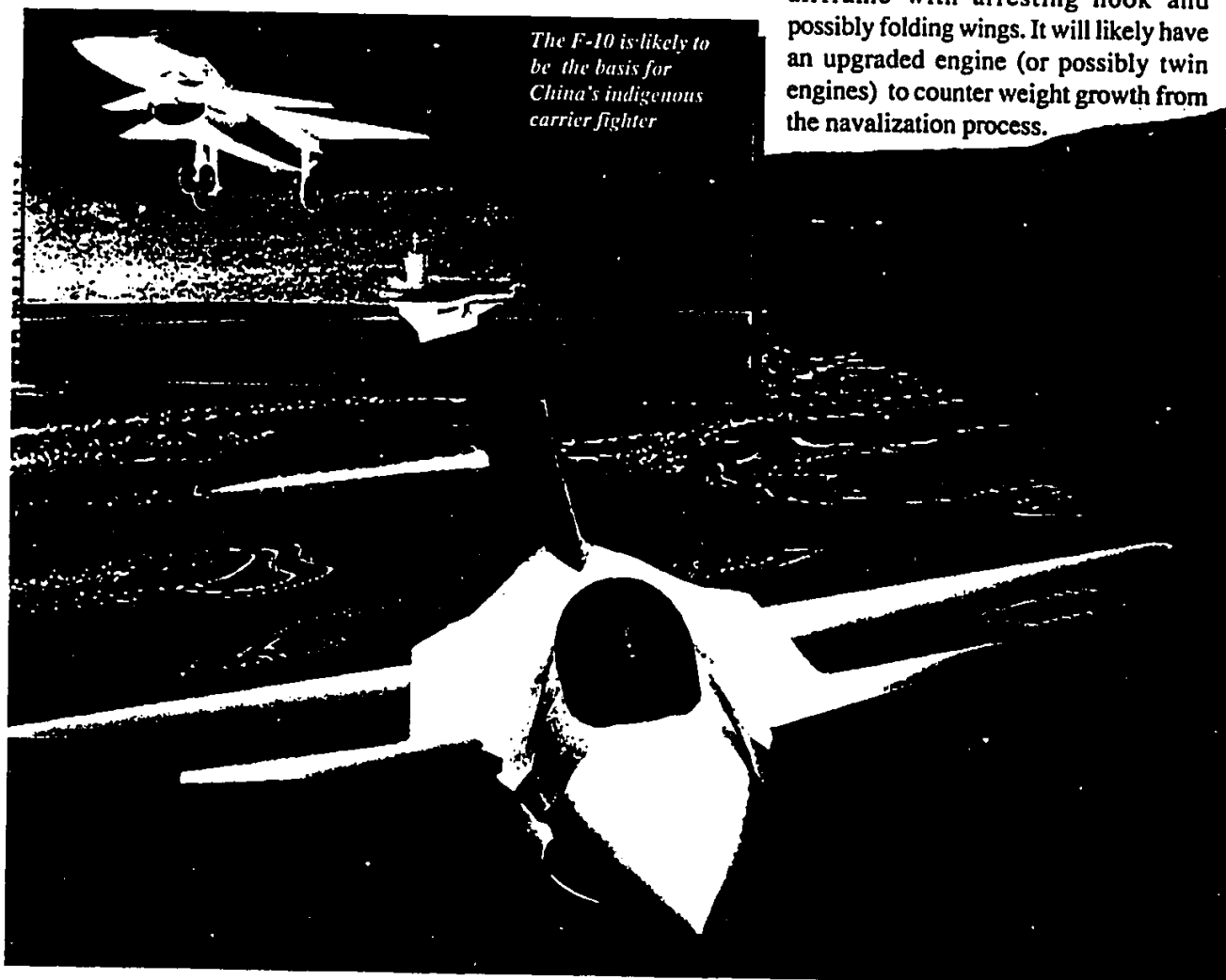
The F-10 is a single seat light multi-role fighter based heavily on the cancelled Israeli LAVI program. Performance will be in the general category of the U.S. F-16. Access to Western technology will mean that the F-10 will IOC with more sophisticated onboard systems than the Su-27SK. The F-10 weapons and propulsion system will likely have significant Russian influence.

*Desk model of the indigenous F-10*



In the 2010 timeframe, China is projected to field its first aircraft carrier. A navalized derivative of the F-10 is the most likely candidate to operate from this ship. It will require a strengthened airframe with arresting hook and possibly folding wings. It will likely have an upgraded engine (or possibly twin engines) to counter weight growth from the navalization process.

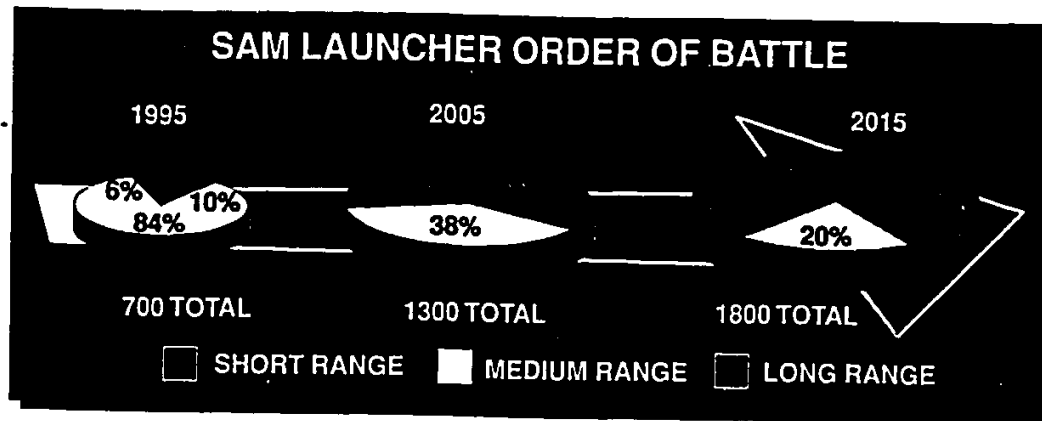
*The F-10 is likely to be the basis for China's indigenous carrier fighter*



# CHINA: SURFACE-TO-AIR MISSILE SYSTEMS



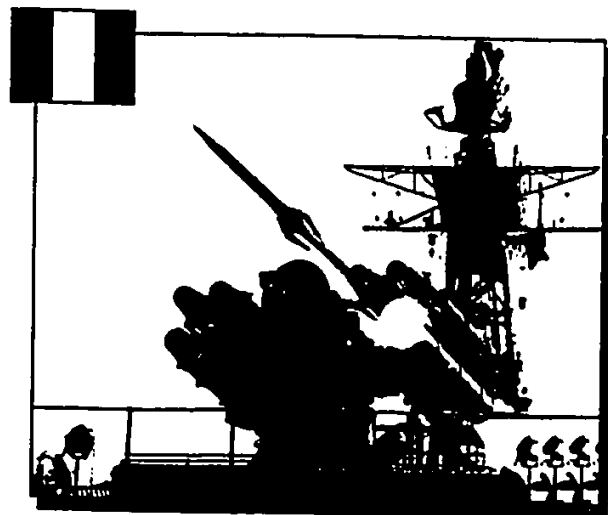
China is using some of its considerable economic power to invest in advanced Russian and Western SAMs with an aim towards meeting specific military needs in addition to gaining access to technology contained within these systems.



China has purchased the Russian SA-10 long range strategic SAM. The missile is being used to protect major centers of government and industry but is also certain to be a contributor to the design of the Chinese developmental HQ-9. Technology from advanced Western systems may also be incorporated into the HQ-9. China has reverse engineered and sold versions of the SA-2 and CROTALE and eventually may offer the HQ-9 for sale on the international market.

China's industry is making generational advances in man-portable air defense systems as it transitions from indigenous copies of the low performance, easily countered SA-7 to its new VANGUARD. The VANGUARD includes technologies taken from newer generation Russian and Western systems.

China has recognized the importance of countering low-observable aircraft and cruise missiles. Engineering efforts to develop air defense systems capable of detecting, and eventually engaging, these systems are underway.



China uses and sells versions of the French CROTALE SAM



The VANGUARD shoulder launched SAM incorporates many new technologies



Development of the HQ-9 SAM (incorporating technology from the Russian SA-10) continues

# CHINA: STATUS OF OPERATIONAL FORCES



Chinese airpower faces a number of problems including large scale block obsolescence, difficulty assimilating high technology systems, and serious training and doctrine deficiencies. Nevertheless, recent developments have shown the Chinese are attempting to solve most of their problems and are beginning to demonstrate more willingness to use their air power.



For decades, fighter tactics in China were stalled at a rudimentary level. Introduction of the Su-27 has provided an opportunity to experiment, and future innovations will likely be developed with this platform. Training is barely adequate to sustain a large pilot force at a basic level of proficiency, but the ability to rapidly develop and apply new missions or tactics across the board is doubtful.

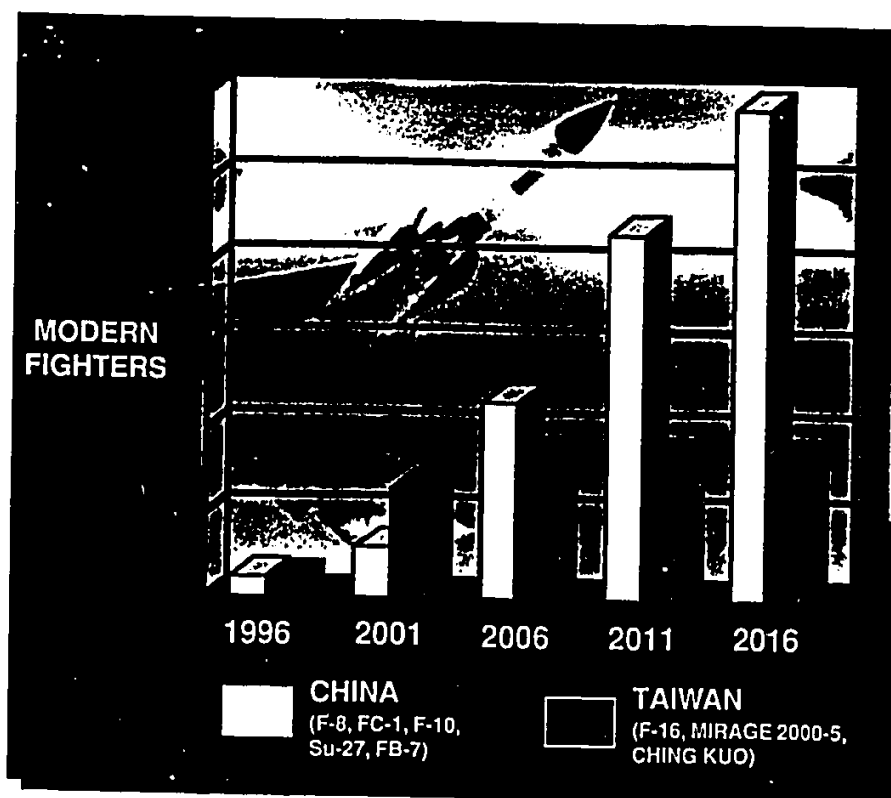


CHING KUO/IDF

## THE LOCAL BALANCE

Taiwan has made major strides in the modernization of its air force by developing the indigenous CHING KUO fighter and purchasing U.S. F-16 and French MIRAGE 2000-5 fighters. Taiwan will enjoy a numerical advantage in advanced fighters compared to the mainland until the F-10 begins entering service in large numbers around 2005. This Taiwanese qualitative advantage in fighters offsets the larger numbers of PRC aircraft, thus maintaining parity and deterrence in the skies over the Taiwan Strait. If the Chinese force expansion occurs as projected, Taiwan may reassess its air force requirements.

China's air force is made up of large numbers of obsolescent fighter types. Less than 100 of the 4,000 fighters in service today are of modern design.

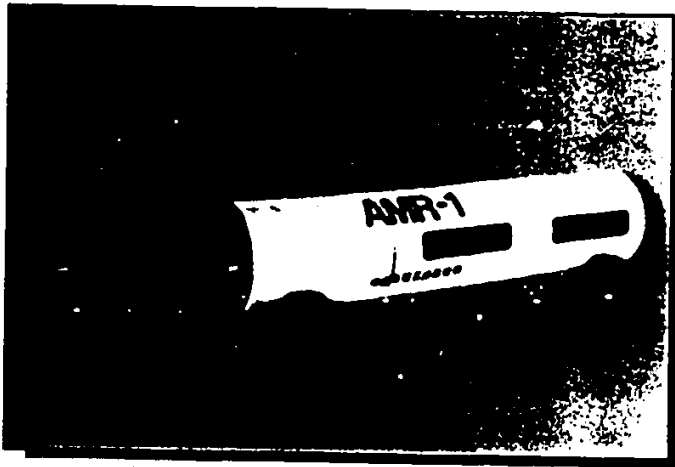
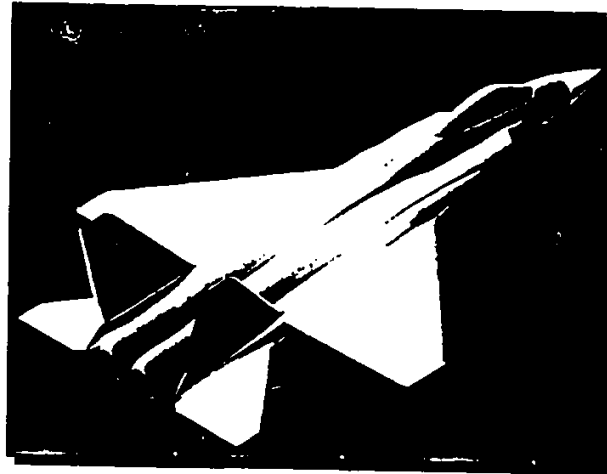


# C HINA: THE FUTURE

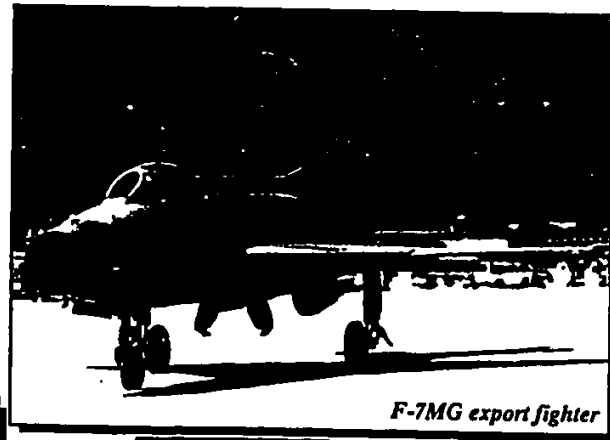


## XXJ

China's major designers are competing to develop a much more capable fighter. This aircraft is expected to be a large multi-role fighter with an emphasis on air combat and a reduced radar signature design. The aircraft could enter service with both the air force and the navy around 2015.

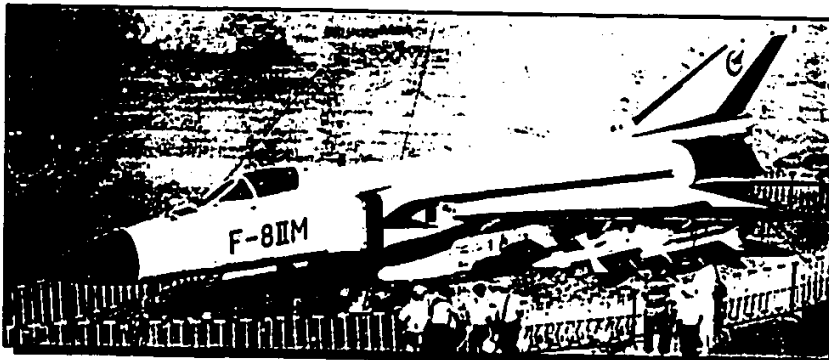


*Experimental active radar air-to-air missile seeker*



*F-7MG export fighter*

*In November 1996, China held its first large-scale aviation trade show at Zhuhai. This show was an example of the growing confidence and stature of the Chinese aerospace industry. China continues to sell relatively low cost air defense systems, while funding more advanced programs for the future.*



*F-8 IIM interceptor with Russian weapons*



*FC-1 light fighter cockpit mock-up*